

Frontiers in Gamma Ray Spectroscopy

FIG18



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Investigation of the level structure of ^{29}Al at high spin#

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Content :

The level structure of the odd-mass ^{29}Al nucleus has been investigated following heavy-ion induced fusion evaporation reaction, $^{18}\text{O}(^{13}\text{C}, 1\text{p}1\text{n})^{29}\text{Al}$. The accelerated beam at 30-MeV was provided by the BARC-TIFR Pelletron Linac facility at Mumbai, India. The de-exciting gamma rays were detected using INGA (Indian National Gamma Array). During the time of the experiment, the array was comprised of fifteen Compton suppressed high-resolution Clover detectors. The level scheme has been deduced using the conventional gamma-gamma coincidence analysis. The probable spins of the excited levels could be established from the angle dependent anisotropy ratio measurements of the transitions decaying from the concerned levels. Lifetime measurements using DSAM technique, with modified algorithms, have been carried out for a few of the observed levels. The observed level structure of ^{29}Al appears to exhibit the possible on set of multi-facet excitation modes. Further, the shell model calculations, carried out within the sd-model space, reproduces qualitatively the observed experimental features.

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